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Introduction

Congratulations on your purchase of the M-Audio Keystation 49e, a 49-note full-size, velocity sensitive USB keyboard designed for easy integration with your PC or Macintosh computer. Ideal for a multitude of music creation and education applications, Keystation 49e offers you modulation and pitch bend wheels, plus assignable buttons and a slider for hands on control. Though Keystation 49e features true plug-and-play operation under Windows XP and Mac OS X, we recommend that you spend a few minutes reviewing this manual to learn about proper operation, advanced functionality, and programmability.

Product Features

Keyboard:

- 49-note velocity-sensitive keyboard
- pitch bend and modulation wheels
- volume/control slider
- advanced function button for programming
- sustain foot pedal input
- octave +/- buttons to extend keyboard range
- separate MIDI out jack routes MIDI signals from your computer to control external devices
- powered via USB or 9VDC power adapter (not included)
- functions as a standalone USB MIDI interface
- plug-and-play functionality via class compliancy in Windows XP and Mac OSX

Ports:

- MIDI OUT
- USB MIDI IN/OUT

Power:

- USB powered
- DC IN for external PSU

What's in the Box?

Your M-Audio Keystation 49e package should contain the following items:

- M-Audio Keystation 49e USB keyboard
- User Manual
- USB cable

If any of the above listed items are missing, please contact the retailer where you purchased the product.

About the Manual

This instruction manual covers the operation of the Keystation 49e USB keyboard. Though we do not provide detailed explanation about how to set up your keyboard for use with third party music software, the majority of these software applications will work seamlessly with the Keystation 49e keyboard.

Connecting Your Keyboard

Before You Connect...

You can power the keyboard either via USB or an optional external power supply. However, the Keystation 49e is a very low power device and an external power supply should not be necessary. It is recommended that you connect the Keystation 49e to an onboard USB port or to a powered USB hub.

Power & Connection Via USB

1. Check that the on/off button on the back of the unit is set to "OFF."
2. Plug the USB cable provided with the Keystation 49e keyboard to a free USB port on your computer.
3. Plug the other end of the USB cable to the USB input on the Keystation 49e.

The single USB cable not only powers the keyboard but also sends MIDI data to and from your computer system.

Using An External Power Supply

You can also use a power adapter (not included) with the following specification: 9V DC output, 250- 300mA, center positive.

Make sure you are not already powering the Keystation 49e keyboard via USB– if you are receiving power from the USB hub, no External supply is needed. If not, then simply plug the power supply in to the "DC 9V" input and switch the power on.

Note: Do not leave the adapter plugged in for long periods of time if the unit is not in use.

Windows XP and Mac OSX

If you are using Windows XP or Mac OSX, you can now simply switch the keyboard's power switch to the "ON" position. Because the Keystation 49e keyboard is class compliant, it will work without any further installation.

Other Operating Systems

If you're using an operating system other than OSX or Windows XP, please visit the M-Audio website at www.m-audio.com to look for any updated Macintosh or Windows OS Keystation 49e drivers.

Installing in Mac OS9

If you do not have OMS installed, please run the OMS installer first. Otherwise jump to "Installing the OMS Driver".

Installing OMS:

Make sure that all programs are shut down before you begin the installer. Also make sure you have removed any dongles (copy protection devices) that are being used.

1. Insert the Keystation 49e Installer CD-ROM.
2. Double click on the Keystation 49e Installer CD icon on your desktop
3. Double click on the OS 9 folder.
4. Double click on Install OMS 2.3.8
5. Follow the on-screen instructions
6. OMS will now take a few moments to install OMS. When it has finished, it will ask you to restart the computer, click 'Restart'.

Installing the OMS driver

1. Click and drag the USB Drivers Installer, from the OS 9 window it is currently in, to the desktop.
2. Double click on the icon. If a window appears, click 'Open'.
3. Double click on the newly created USB Drivers Installer on your desktop.
4. Click 'Install'. The installer will automatically place the drivers in the correct system folders.
5. Once the installer has finished installing the drivers, click 'Restart'.
6. Switch on the Keystation 49e.

OMS Setup

You now must run the OMS Setup program:

1. Open the Hard Drive, then the 'Opcode' folder, the 'OMS Applications folder', and then 'OMS Setup'.
2. If you get a message to switch Appletalk on or off, choose either options. This will make no difference to the OMS Setup.
3. In the next window, click 'OK'.
4. Click 'Search'.

5. Click 'OK'
6. Then 'OK' again.
7. Click 'Save'.
8. If it asks you, click 'Replace'.

You should now have a final window showing your current Studio Setup. If 'Quicktime Music' is crossed out, you should double click on it, then click in the 'on' circle to enable it. Then click 'OK'. Now you're ready to go. Just make sure your Keystation 49e keyboard is selected as the MIDI input in your music software.

Installing in Windows 98 or ME

1. Power up your PC.
2. Insert the Keystation 49e Installer CD-ROM.
   Open My Computer or Windows Explorer to locate your CD ROM drive.
   Click on the folder labeled Keystation 49e.
3. Open the Keystation 49e folder and click on the installer icon.
4. Follow instructions on screen.
5. When finished exit setup.
6. Switch on the Keystation 49e.

Windows will proceed with the installation of a USB driver and a MIDI driver. Once completed, you are ready to go. Windows may ask you to restart your computer - if so, click "Restart".

Installing in Windows 2000

1. Power up your PC.
2. Insert the Keystation 49e Installer CD-ROM. Open My Computer or Windows Explorer to locate your CD ROM drive. Click on the folder labeled Keystation 49e.
3. Open the Keystation 49e folder and click on the installer icon.
4. Follow instructions on screen.
5. When finished exit setup.
6. Switch on the Keystation 49e keyboard. Windows will automatically recognize the keyboard and ask for the Keystation 49e Installer CD-ROM.
7. Select the CD-ROM drive and click OK. Windows will then ask you to select the CD-ROM drive again for the MIDI driver.
8. If Windows reports the drivers have not been digitally signed, click on 'Continue Installation'.
9. Select the drive once more.
10. Click OK and you are ready to go (Windows may ask you to restart your computer - if so, click "Restart").

Getting Started

Even though you have successfully completed the installation process, please note that when you press a key you will not hear any sound. This is because pressing a key causes the keyboard to send out MIDI data. MIDI data gives instructions on how a sound should play, but in order to actually hear that sound, you need to configure your music software to read the MIDI data being sent from the Keystation 49e and play the sound back accordingly. This set up will more than likely entail going into an Options or Device Set-Up menu in your music software application and selecting the appropriate device. The Keystation 49e should appear under the name "USB Audio Device" for Windows XP or as "eKeys-49 USB MIDI Keyboard" for other Operating Systems in the MIDI devices section of your music software application. Please consult the manual that came with your software for the proper set up procedure.

Key Names

Each white key on the Keystation 49e is labeled with a letter and a number. The letter represents the note you play, and the number represents the octave (the concept of an "octave" is explained in the next section).

Although the black keys are not labeled, they also have names. For example, the name of a black key can be something like F# 4 or Eb2.

If a (black) key letter name is listed with a # sign, it is referring to the black key above the white key with the same letter name. For example F# 3 refers to the black key above (white key) F3. If listed with a b sign, it is referring to the black key below the white note with that letter name. For example, Eb3 refers to the black key below (white key) E3. As a result, the name of the black key between C3 and D3 is both C#3 and Db3.

Octaves Buttons

An octave contains 12 notes. Each octave is marked out clearly on your Keystation 49e keyboard, by black and white sections starting on C. Each octave is given a number.

The Keystation 49e is able to shift the pitch of it's keys up or down by one or more octaves. When the keyboard's octaves are not shifted (octave shift set to 0), the lights above both the octave "+" and octave "-" buttons will be lit (this is the default octave shift designation is "0" andwill be the octave setting each time you power up the keyboard).

If you press the octave "+" button once, the light above the octave "-" button will go out, indicating the keyboard is now playing an octave higher. If you press the Octave "+" button again, the keyboard will be shifted up 2 octaves, and so on. It is possible to shift the keyboard up 4 octaves. To shift the octave downwards,

press the octave "-" button in the same manner, pressing once for 1 octave, twice for 2 octaves, and so on. It is possible to shift the keyboard down 3 octaves.

To return the keyboard's octave shift to 0, press both the octave "+" and "-" buttons together (both LEDs will light, indicating that the octave shift has returned to 0 - if the light shows above the octave "+" key only the octave's shifted up, if above the octave "-" key only, the octave's shifted down).

The Pitch Bend Wheel

As the name indicates, the pitch bend wheel is usually used to bend the notes played on the keyboard up or down. This allows you to play phrases not normally associated with keyboard playing, including guitar-style riffs.

Your sound source determines how far you can bend the note. The usual setting is two semitones but can be up to two octaves +/-.

The Modulation Wheel

The modulation wheel is typically used for modulation of the sound you are playing. This type of real-time controller was originally introduced on electronic keyboard instruments to give the performer options such as adding vibrato just like players of acoustic instruments do. Just like the pitch bend wheel, the modulation wheel is fully MIDI assignable.

The Volume Slider

The Volume slider sends a MIDI message that controls the volume of the notes you are playing.

The volume slider can also be assigned to different effects such as pan (balance), attack, reverb, chorus and many more. (See "Advanced Functions" Section.)

Using with a Foot Pedal

You can plug any polarity foot pedal (not included) in to the foot switch input on your M-Audio keyboard. The keyboard will automatically detect the correct polarity when powering up. If you want to reverse the polarity, just make sure the pedal is pressed when you switch on your keyboard.

The foot pedal is normally used for sustaining the sound you are playing without having to keep your hands on the keyboard, just like a piano.

The Advanced Function Button

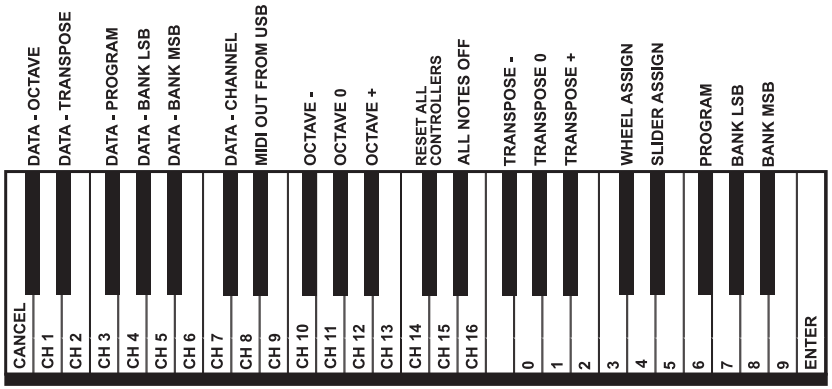
The button to the left of the keys labeled "Advanced Functions" is used to access all the remaining ('advanced') functions of the keyboard.

When this button is pressed, the keyboard will go into "Edit Mode." While in Edit Mode, the keys on the keyboard can be used to select functions and enter data.

The light above the Advanced Functions button indicates whether or not the keyboard is in Edit Mode. When in Edit Mode, the black keys on the keyboard are used for selecting functions, while the white keys are used for data entry and channel selection.

Your keyboard will slip out of Edit Mode as soon as either a function is selected or the CANCEL or ENTER keys are pressed (the light above the Advanced Functions button will turn off). The keyboard can then be used to play notes again.

The following diagram shows what each key on the keyboard represents when in Edit Mode:



Advanced Functions

In addition to setting an octave shift, the two octave "+" and ""-" buttons discussed earlier in the manual under the section "Octave Buttons" can also be used to control one of five MIDI functions.

In the diagram above you see that the first 6 black keys are labeled "DATA = ----." These keys are used to select the deired alternate function of the octave buttons. Some of the functions that these keys can be used for cannot send out a value less than 0. When used to control these functions, both lights above the buttons will remain on, regardless of the current setting of that function.

To select an alternate function:

- Press the Advanced Functions button, putting the keyboard into Edit Mode.
- Press the black key that represents the function you want. Edit Mode will finish as soon as you have selected the function and you will be able to play notes again.

The five available alternate functions of the octave buttons are described next:

Octave Shift

The Octave "+" And "-" Keys

Another method of shifting the Keystation 49e's octaves is with the use of the keys labeled octave "+" and "-". After the Advanced Function button has been pressed, placing the keyboard is in Edit Mode, pressing these keys will shift the keyboards pitch up or down one or more octaves (one for time each pressed). The default octave shift designation is "0" and will be the octave setting each time you power up the keyboard. The lights above the octave buttons indicate that 0 octave shift is set when both are on.

To assign the "+" and "-" keys to control the octave:

- Press the Advanced Functions button to get the keyboard into Edit Mode.
- Press the black key above C1 (named C# 1), representing DATA = OCTAVE. Edit Mode will finish as soon as C# 1 has been pressed.

There is also a method of performing a 'quick' octave change, which can be useful when using the octave buttons to control another MIDI function and is accompplished as follows:

- Press the Advanced Functions button to put the keyboard in Edit Mode.
- Press the black key below B2 (Bb2). In Edit Mode, this key functions as "OCTAVE +", increasing the octave by 1 (you may press it again to increase the octave by 2, and so on).
- Press the black key above F2 (F# 2) (in Edit Mode, this key functions as "OCTAVE -", decreasing the octave by 1 (you may press it again to decrease the octave by 2, and so on) **OR** press the black key above G2 (named G# 2) (in Edit Mode, this key functions as "OCTAVE 0" to reset the octave shift to 0).
- When you have chosen your octave shift press C5, representing "ENTER," to leave Edit Mode.

Transpose

In some cases it is useful to reduce or increase the pitch by a number of semitones rather than a whole octave. For example, you may be playing a song with a singer and the singer is having trouble hitting the top notes. In this

case, is a good idea to try reducing the pitch by one or two semitones.* This is achieved using a MIDI function called "Transpose."

Transpose works in the same way as Octave Shift above, except the shift is +/- 12.

As with Octave Shift, there are two ways of transposing the keyboard. You can use the Octave "+" and "-" buttons, or the black keys F# 3, G# 3 and Bb3. These black keys represent "TRANSPOSE -," "TRANSPOSE 0" and "TRANSPOSE +," respectively.

To assign the octave "+" and "-" buttons to transpose:

- Press the Advanced Functions button to get the keyboard into Edit Mode.
- Press the black key above D1 (named D# 1), representing "DATA = TRANSPOSE."
- Edit Mode will finish as soon as D# 1 has been pressed.
- Press the "+" key and you will hear the pitch of the note you play go up.

*A semitone represents the change in pitch from one note to another. So, changing two semi- tones is the same as playing a note two notes higher.

Channel

MIDI data from the keyboard can be sent on any of 16 MIDI channels. However, certain MIDI devices and MIDI software requires the keyboard to send data on a specified channel. If this is the case, you can change the channel the data is sent using the following method:

- Press the Advanced Functions button to get the keyboard into Edit Mode.
- Press one of the 16 channel keys from D1 to E3, whichever one represents the channel you need.

For example, if a device specifies that you need to send data on Channel 10, press the Advanced Functions button, and then key F2 to select Channel 10.

The Channel can also be assigned to the Octave "+" and "-" buttons. This will increment through the channels. When Channel 16 is reached and "+" is pressed, Channel 1 will be selected. If the Octave "+" and "-" keys are selected to vary the Channel, the lights above the buttons will not change, since it is not possible to have a Channel with a negative value. Pressing both the "+" and "-" buttons together will recall Channel 1.

Program Change

Program Changes are used to change the instrument or voice you are using. For example, let's change the instrument to a bass sound. To do this we need to send a program change of 32, which will select an acoustic bass sound

from the General MIDI Instruments list (see Appendix). There are two methods send the program change:

1. Incremental/Decremental Program Change:

- Press the Advanced Functions button.
- Press the black key above F1 (named F# 1).
- Now the Octave "+" and "-" keys can be used to change the program.
- Press "+" and continue to play some notes until you find the instrument you want.

2. Quick Select Program Change

- Press the Advanced Functions button.
- Press the black key above F4 (named F# 4), representing "program."
- Press keys C4, then E3 then C5. This enters the combination: "3," "2," "ENTER." Alternatively, you can use the "+" and "-" buttons to change the value, and then press ENTER.

Now the keyboard is set to play the GM bass sound 32 (from the General MIDI Instruments standard list). The full list of instruments accessible using program changes is given in the Appendix at the end of this manual.

Method 1 is useful if you want to cycle through different instruments to see which sounds best in your song, while Method 2 is more useful if you want to select a specific number, as is the case here.

If the Octave "+" and "-" keys are selected to vary the Program number (Method 1), the lights above the buttons will not change, since it is not possible to have a Program with a negative value. Pressing both the "+" and "-" buttons together will recall Program 0, which selects a grand piano sound.

Bank LSB and Bank MSB

Program Changes are the most commonly used messages to change instruments and voices. However, the number of instruments accessible using Program Changes is limited to 128. Since some devices have more than 128 voices, they require a different method to access these extra voices. Generally, these devices use Bank LSB and Bank MSB messages, The Keystation 49e can accomplish these changes in two ways and they aredesccribed following:

1. Incremental/Decremental Bank LSB and Bank MSB Change:

- Press the Advanced Functions button.
- Press the black key above G1 (named G# 1).
- Now the Octave "+" and "-" keys can be used to change the program.
- Press "+" and continue to play notes until you find the instrument you want.

2. Using the Quick Select Method:

- Press the Advanced Functions button.
- Press the black key above G4 (named G# 4), or A$ (named A# 4), representing Bank LSB or Bank MSB respectively.
- Press keys C4, then E3 then C5. This enters the combination: "3," "2," "ENTER." Alternatively, you can use the "+" and "-" buttons to change the value, and then press "ENTER."

As with Program change, if the Octave "+" and "-" keys are selected to vary the Bank LSB or MSB number (Method 1), the lights above the buttons will not change, since it is not possible to have a Bank with a negative value. Pressing both the "+" and "-" buttons together will recall Bank 0.

The other controller devices on the Keystation 49e can also be used to control advanced functions, as described following:

The Modulation Wheel

It is possible to assign MIDI effects to the Modulation Wheel. Some useful effects are:

- 01 Modulation
- 07 Volume
- 10 Pan (balance)
- 05 Portamento

There are 131 effects in total, however for these effects to have any affect on the sound the receiving MIDI device has to be able to read and respond to these MIDI effect messages. Most devices will at least respond to volume, modulation, and pan data. (The full list of effects is given at the back of this manual.)

To assign an effect to the Modulation Wheel:

- Press the Advanced Functions button to get the keyboard into Edit Mode.
- Press the Black Key above C4 (named C# 4), representing "WHEEL ASSIGN."
- Use the Numerical Data Entry keys G3 — B4 to enter the number of the effect you want to assign to the Modulation Wheel.

Alternatively, you can use the "+" and "-" buttons to change the value.

- Press the ENTER key (C5).
- Move the Modulation Wheel upwards to increase the value of the effect.

If you make an error while entering the numerical data value, you can press the CANCEL key (C1) to exit Edit Mode without changing the effect assigned to the Modulation Wheel.

(Note that each time the keyboard is turned off the data assigned to the Modulation Wheel will be lost. Each time the keyboard is powered up, the modulation Wheel will default to being assigned to Modulation, effect number 01.)

As an example, let's assign effect number 10 to the modulation wheel. This means the modulation wheel will control the Pan (or balance). To do this, we need to:

- Press the Advanced Functions button to get the keyboard into Edit Mode.
- Press the Black Key above C4 (named C# 4), representing "WHEEL ASSIGN."
- Press A3 to enter "1."
- Press G3 to enter "0" so you have entered "10."
- Press C5 for "ENTER."

The Volume Slider

As with the Modulation Wheel, the Volume Slider can be assigned to any of the 131 effects shown at the back of this manual.

To assign the Volume Slider to an effect:

- Press the Advanced Functions button to get the keyboard into Edit Mode.
- Press the Black Key above D4 (named D# 4), representing "SLIDER ASSIGN."
- Use the Numerical Data Entry keys G3 — B4 to enter the number of the effect you want to assign to the Volume Slider.

Alternatively, you can use the "+" and "-" buttons to change the value.

- Press the ENTER key (C5).
- Move the Volume Slider upwards to increase the value of the effect.

If you make an error while entering the numerical data value, you can press the CANCEL key (C1) to exit Edit Mode without changing the effect assigned to the Volume Slider.

(Note that each time the keyboard is turned off, the data assigned to the Volume Slider will be lost. Each time the keyboard is powered up, the Volume Slider will default to being assigned to Volume, effect number 07.)

Pitchbend Sensitivity

It is possible to alter the sensitivity of the Pitchbend wheel by assigning effect number 128 to the Modulation Wheel or Volume Slider. This will allow you to alter the pitchbend range up to one octave up and down.

MIDI - If All Goes Wrong

The Keystation 49e has been designed to make working with MIDI on your computer as simple as possible. However, sometimes things can go wrong. In many cases, the keyboard is not at fault; the problem lies with the receiving device. To counter this, there are two useful MIDI functions:

All Notes Off

Use this if you find there are hanging notes that you cannot stop playing. To send an "All Notes Off" MIDI message:

- Press the Advanced Functions button to get the keyboard into Edit Mode.
- Press the Black Key above D3 (named D# 3), representing "ALL NOTES OFF."
- Edit Mode will exit, and there will no longer be any hanging notes.

Reset All Controllers

If you find there is an effect on a voice that you do not want, rather than having to worry about what that effect may be, you can send a "Reset All Controllers" MIDI message to set all effects to 0. To send a Reset All Controllers message:

- Press the Advanced Functions button to get the keyboard into Edit Mode.
- Press the Black Key above C3 (named C# 3 and representing "RESET ALL CONTROLLERS").
- Edit Mode will exit, and there will no longer be any effects on the voice, allowing you to start from scratch.

MIDI Out

On the back of the keyboard you find the MIDI output port, which you can connect to an external sound module or MIDI keyboard. By default (when you switch the unit on), all controller data is sent out via the MIDI output as well as the USB out.

If you want the MIDI output to act like a traditional USB-to-MIDI interface, engage "MIDI Out from USB" mode by carrying out the following instructions:

- Press the Advanced Functions button to get the keyboard into Edit Mode.
- Press the black key above D2 (named D# 2 and representing "MIDI OUT FROM USB").
- Edit Mode will finish.
- The keyboard is now able to send data received from the computer out of its MIDI OUT jack to whatever device is connected.
- You need to select the Keystation 49e USB MIDI Out as the MIDI output device in your sequencer to use the MIDI output.

Trouble-Shooting

Here are answers to common trouble-related questions you may have, using your Keystation 49e:

Problem 1: My M-Audio hardware suddenly stopped working after having performed fine since installation.

Solution 1: Switch off the unit and leave for 10 seconds. Then restart your computer and try again. If the problem persists you may have to re- install drivers for the unit.

Problem 2: I have plugged in a sustain pedal into my M-Audio keyboard, but it works the wrong way around.

Solution 2: The polarity of the sustain pedal is calculated by the keyboard when it is powered up. On power up, the sustain pedal is assumed to be in the OFF position. So if you want the sustain pedal to be off when it is unpressed, make sure the pedal is unpressed when you power up.

Problem 3: When I press a key, there is a delay before I hear any sound.

Solution 3: This delay is known as latency. Latency with MIDI signals is due to the softsynth you are using. MIDI data is simply control data. The MIDI is read by the softsynth. The softsynth then completes a large number of complex calculations in order to produce the sound you hear—all this takes time.

We strongly recommend a proper soundcard. Refer to www.m-audio.com for a selection of USB, PCI and Firewire audio cards. If you already have an adequate sound card, try reinstalling the latest drivers for the sound card, or try reducing the buffer sizes of the audio drivers.

Contact M-Audio

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Warranty Info

Register your Keystation 49e online to receive FREE product updates and be entered to win FREE M-Audio gear (www.m-audio.com/register).

M-AUDIO warrants this product, under normal use, to be free of defects in materials and workmanship for a period of One (1) Year from date of purchase, so long as: the product is owned by the original purchaser, with proof of purchase from an authorized M-AUDIO dealer and, the product has been registered to the original purchaser, the purchaser having returned to M-AUDIO the completed product warranty card. This warranty explicitly excludes power supplies and included cables which may become defective as a result of normal wear and tear.

In the event that M-AUDIO receives, from an original purchaser and within the warranty coverage period, written notice of defects in materials or workmanship, M-AUDIO will either replace the product, repair the product, or refund the purchase price at its option. In the event repair is required, shipment to and from M-AUDIO and possible nominal handling charges shall be born by the purchaser. In the event that repair is required, a Return Authorization number must be obtained from M-AUDIO. After this number is obtained, the unit should be shipped back to M-AUDIO in a protective package with a description of the problem and the Return Authorization clearly written on the package.

In the event that M-AUDIO determines that the product requires repair because of user misuse or regular wear, it will assess a fair repair or replacement fee. The customer will have the option to pay this fee and have the unit repaired and returned, or not pay this fee and have the unit returned un-repaired.

The remedy for breach of this limited warranty shall not include any other damages. M-AUDIO will not be liable for consequential, special, indirect, or similar damages or claims including loss of profit or any other commercial damage, even if its agents have been advised of the possibility of such damages, and in no event will M-AUDIO's liability for any damages to the purchaser or any other person exceed the price paid for the product, regardless of any form of the claim. M-AUDIO specifically disclaims all other warranties, expressed or implied. Specifically, M-AUDIO makes no warranty that the product is fit for any particular purpose.

This warranty shall be construed, interpreted, and governed by the laws of the state of California. If any provision of this warranty is found void, invalid or unenforceable, it will not affect the validity of the balance of the warranty, which shall remain valid and enforceable according to its terms. In the event any remedy hereunder is determined to have failed of its essential purpose, all limitations of liability and exclusion of damages set forth herein shall remain in full force and effect.

Technical Info

Caution: Electro Static Discharge, Electrical Fast Transient and Conducted RF interference may cause the unit malfunctioning. In such case, unplug the unit and plug in again to restore normal operation.

Note: Your M-AUDIO Keyatation 49e has been tested To Comply With FCC Standards FOR HOME OR OFFICE USE. Modifications not authorized by the manufacturer may void users authority to operate this device.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

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M-AUDIO® Keystation 49e

FC Tested to comply with FCC standards

FOR HOME OR STUDIO USE

Appendices - Useful MIDI Data

Appendix A - General MIDI Instruments

Piano	**Bass**	**Reed**	**Synth Effects**
0 Acoustic Grand Piano	32 Acoustic Bass	64 Soprano Sax	96 SFX Rain
1 Bright Acoustic Piano	33 Electric Fingered Bass	65 Alto Sax	97 SFX Soundtrack
2 Electric Grand Piano	34 Electric Picked Bass	66 Tenor Sax	98 SFX Crystal
3 Honky Tonk Piano	35 Fretless Bass	67 Baritone Sax	99 SFX Atmosphere
4 Electric Piano 1	36 Slap Bass 1	68 Oboe	100 SFX Brightness
5 Electric Piano 2	37 Slap Bass 2	69 English Horn	101 SFX Goblins
6 Harpsichord	38 Syn Bass 1	70 Bassoon	102 SFX Echoes
7 Clavinet	39 Syn Bass 2	71 Clarinet	103 SFX Sci- Fi
Chromatic Percussion	**Strings/ Orchestra**	**Pipe**	**Ethnic**
8 Celesta	40 Violin	72 Piccolo	104 Sitar
9 Glockenspiel	41 Viola	73 Flute	105 Banjo
10 Music Box	42 Cello	74 Recorder	106 Shamisen
11 Vibraphone	43 Contrabass	75 Pan Flute	107 Koto
12 Marimba	44 Tremolo Strings	76 Bottle Blow	108 Kalimba
13 Xylophone	45 Pizzicato Strings	77 Shakuhachi	109 Bag Pipe
14 Tubular bells	46 Orchestral Harp	78 Whistle	110 Fiddle
15 Dulcimer	47 Timpani	79 Ocarina	111 Shanai
Organ	**Ensemble**	**Synth Lead**	**Percussive**
16 Drawbar Organ	48 String Ensemble 1	80 Syn Square Wave	112 Tinkle Bell
17 Percussive Organ	49 String Ensemble 2 (Slow)	81 Syn Sawtooth Wave	113 Agogo
18 Rock Organ	50 Syn Strings 1	82 Syn Calliope	114 Steel Drums
19 Church Organ	51 Syn Strings 2	83 Syn Chiff	115 Woodblock
20 Reed Organ	52 Choir Aahs	84 Syn Charang	116 Taiko Drum
21 Accordion	53 Voice Oohs	85 Syn Voice	117 Melodic Tom
22 Harmonica	54 Syn Choir	86 Syn Fifths Sawtooth Wave	118 Syn Drum
23 Tango Accordion	55 Orchestral Hit	87 Syn Brass & Lead	119 Reverse Cymbal
Guitar	**Brass**	**Synth Pad**	**Sound Effects**
24 Nylon Acoustic	56 Trumpet	88 New Age Syn Pad	120 Guitar Fret Noise
25 Steel Acoustic	57 Trombone	89 Warm Syn Pad	121 Breath Noise
26 Jazz Electric	58 Tuba	90 Polysynth Syn Pad	122 Seashore
27 Clean Electric	59 Muted Trumpet	91 Choir Syn Pad	123 Bird Tweet
28 Muted Electric	60 French Horn	92 Bowed Syn Pad	124 Telephone Ring
29 Overdrive	61 Brass Section	93 Metal Syn Pad	125 Helicopter
30 Distorted	62 Syn Brass 1	94 Halo Syn Pad	126 Applause
31 Harmonics	63 Syn Brass 2	95 Sweep Syn Pad	127 Gun Shot

Appendix B - Standard MIDI Controller Numbers (MIDI CC's)

00 Bank Select	46 Controller 46	92 Tremelo Depth
01 Modulation	47 Controller 47	93 Chorus Depth
02 Breath Control	48 Gen Purpose 1 LSB	94 Celeste (De- tune)
03 Controller 3	49 Gen Purpose 2 LSB	95 Phaser Depth
04 Foot Control	50 Gen Purpose 3 LSB	96 Data Increment
05 Porta Time	51 Gen Purpose 4 LSB	97 Data Decrement
06 Data Entry	52 Controller 52	98 Non- Reg Param LSB
07 Channel Volume	53 Controller 53	99 Non- Reg Param MSB
08 Balance	54 Controller 54	100 Reg Param LSB
09 Controller 9	55 Controller 55	101 Reg Param MSB
10 Pan	56 Controller 56	102 Controller 102
11 Expression	57 Controller 57	103 Controller 103
12 Effects Controller 1	58 Controller 58	104 Controller 104
13 Effects Controller 2	59 Controller 59	105 Controller 105
14 Controller 14	60 Controller 60	106 Controller 106
15 Controller 15	61 Controller 61	107 Controller 107
16 Gen Purpose 1	62 Controller 62	108 Controller 108
17 Gen Purpose 2	63 Controller 63	109 Controller 109
18 Gen Purpose 3	64 Sustain Pedal	110 Controller 110
19 Gen Purpose 4	65 Portamento	111 Controller 111
20 Controller 20	66 Sostenuto	112 Controller 112
21 Controller 21	67 Soft Pedal	113 Controller 113
22 Controller 22	68 Legato Pedal	114 Controller 114
23 Controller 23	69 Hold 2	115 Controller 115
24 Controller 24	70 Sound Variation	116 Controller 116
25 Controller 25	71 Resonance	117 Controller 117
26 Controller 26	72 Release Time	118 Controller 118
27 Controller 27	73 Attack Time	119 Controller 119
28 Controller 28	74 Cut- off Frequency	
29 Controller 29	75 Controller 75	**Channel Mode Messages:**
30 Controller 30	76 Controller 76	120 All Sound off
31 Controller 31	77 Controller 77	121 Reset all Controllers
32 Bank Select LSB	78 Controller 78	122 Local Control
33 Modulation LSB	79 Controller 79	123 All Notes Off
34 Breath Control LSB	80 Gen Purpose 5	124 Omni Off
35 Controller 35	81 Gen Purpose 6	125 Omni On
36 Foot Control LSB	82 Gen Purpose 7	126 Mono On (Poly Off)
37 Porta Time LSB	83 Gen Purpose 8	127 Poly On (Mono Off)
38 Data Entry LSB	84 Portamento Control	
39 Channel Volume LSB	85 Controller 85	**Extra RPN Messages:**
40 Balance LSB	86 Controller 86	128 Pitch Bend sensitivity
41 Controller 41	87 Controller 87	129 Fine Tune
42 Pan LSB	88 Controller 88	130 Coarse Tune
43 Expression LSB	89 Controller 89	131 Channel Pressure
44 Controller 44	90 Controller 90	
45 Controller 45	91 Reverb Depth	